SEQUENCE LISTING


<110>   Lombardo, Dominique
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<120>   Glycopeptides derived from pancreatic structures, antibodies and
applications thereof in diagnostics and therapeutics

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<150>   FR 04 03378
<151>   2004-03-31

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ggc ctc acc tgc tgc tgg gca gtg gcg agt gcc gcg aag ctg ggc gcc     100
Gly Leu Thr Cys Cys Trp Ala Val Ala Ser Ala Ala Lys Leu Gly Ala
        15              20              25

gtg tac aca gaa ggt ggg ttc gtg gaa ggc gtc aat aag aag ctc ggc     148
Val Tyr Thr Glu Gly Gly Phe Val Glu Gly Val Asn Lys Lys Leu Gly
    30              35              40

ctc ctg ggt gac tct gtg gac atc ttc aag ggc atc ccc ttc gca gct     196
Leu Leu Gly Asp Ser Val Asp Ile Phe Lys Gly Ile Pro Phe Ala Ala
45              50              55              60

ccc acc aag gcc ctg gaa aat cct cag cca cat cct ggc tgg caa ggg     244
Pro Thr Lys Ala Leu Glu Asn Pro Gln Pro His Pro Gly Trp Gln Gly
            65              70              75

acc ctg aag gcc aag aac ttc aag aag aga tgc ctg cag gcc acc atc     292
Thr Leu Lys Ala Lys Asn Phe Lys Lys Arg Cys Leu Gln Ala Thr Ile
            80              85              90

acc cag gac agc acc tac ggg gat gaa gac tgc ctg tac ctc aac att     340
Thr Gln Asp Ser Thr Tyr Gly Asp Glu Asp Cys Leu Tyr Leu Asn Ile
            95              100             105

tgg gtg ccc cag ggc agg aag caa gtc tcc cgg gac ctg ccc gtt atg     388
Trp Val Pro Gln Gly Arg Lys Gln Val Ser Arg Asp Leu Pro Val Met
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atc tgg atc tat gga ggc gcc ttc ctc atg ggg tcc ggc cat ggg gcc    436
Ile Trp Ile Tyr Gly Gly Ala Phe Leu Met Gly Ser Gly His Gly Ala
125             130             135             140

aac ttc ctc aac aac tac ctg tat gac ggc gag gag atc gcc aca cgc    484
Asn Phe Leu Asn Asn Tyr Leu Tyr Asp Gly Glu Glu Ile Ala Thr Arg
                145             150             155

gga aac gtc atc gtg gtc acc ttc aac tac cgt gtc ggc ccc ctt ggg    532
Gly Asn Val Ile Val Val Thr Phe Asn Tyr Arg Val Gly Pro Leu Gly
                160             165             170

ttc ctc agc act ggg gac gcc aat ctg cca ggt aac tat ggc ctt cgg    580
Phe Leu Ser Thr Gly Asp Ala Asn Leu Pro Gly Asn Tyr Gly Leu Arg
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Asp Gln His Met Ala Ile Ala Trp Val Lys Arg Asn Ile Ala Ala Phe
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ggg ggg gac ccc aac aac atc acg ctc ttc ggg gag tct gct gga ggt    676
Gly Gly Asp Pro Asn Asn Ile Thr Leu Phe Gly Glu Ser Ala Gly Gly
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gcc agc gtc tct ctg cag acc ctc tcc ccc tac aac aag ggc ctc atc    724
Ala Ser Val Ser Leu Gln Thr Leu Ser Pro Tyr Asn Lys Gly Leu Ile
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cgg cga gcc atc agc cag agc ggc gtg gcc ctg agt ccc tgg gtc atc    772
Arg Arg Ala Ile Ser Gln Ser Gly Val Ala Leu Ser Pro Trp Val Ile
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Gln Lys Asn Pro Leu Phe Trp Ala Lys Lys Val Ala Glu Lys Val Gly
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tgc cct gtg ggt gat gcc gcc agg atg gcc cag tgt ctg aag gtt act    868
Cys Pro Val Gly Asp Ala Ala Arg Met Ala Gln Cys Leu Lys Val Thr
        270             275             280

gat ccc cga gcc ctg acg ctg gcc tat aag gtg ccg ctg gca ggc ctg    916
Asp Pro Arg Ala Leu Thr Leu Ala Tyr Lys Val Pro Leu Ala Gly Leu
285             290             295             300

gag tac ccc atg ctg cac tat gtg ggc ttc gtc cct gtc att gat gga    964
Glu Tyr Pro Met Leu His Tyr Val Gly Phe Val Pro Val Ile Asp Gly
                305             310             315

gac ttc atc ccc gct gac ccg atc aac ctg tac gcc aac gcc gcc gac   1012
Asp Phe Ile Pro Ala Asp Pro Ile Asn Leu Tyr Ala Asn Ala Ala Asp
                320             325             330

atc gac tat ata gca ggc acc aac aac atg gac ggc cac atc ttc gcc   1060
Ile Asp Tyr Ile Ala Gly Thr Asn Asn Met Asp Gly His Ile Phe Ala
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agc atc gac atg cct gcc atc aac aag ggc aac aag aaa gtc acg gag        1108
Ser Ile Asp Met Pro Ala Ile Asn Lys Gly Asn Lys Lys Val Thr Glu
    350                    355                    360

gag gac ttc tac aag ctg gtc agt gag ttc aca atc acc aag ggg ctc        1156
Glu Asp Phe Tyr Lys Leu Val Ser Glu Phe Thr Ile Thr Lys Gly Leu
365                    370                    375                    380

aga ggc gcc aag acg acc ttt gat gtc tac acc gag tcc tgg gcc cag        1204
Arg Gly Ala Lys Thr Thr Phe Asp Val Tyr Thr Glu Ser Trp Ala Gln
                385                    390                    395

gac cca tcc cag gag aat aag aag aag act gtg gtg gac ttt gag acc        1252
Asp Pro Ser Gln Glu Asn Lys Lys Lys Thr Val Val Asp Phe Glu Thr
                400                    405                    410

gat gtc ctc ttc ctg gtg ccc acc gag att gcc cta gcc cag cac aga        1300
Asp Val Leu Phe Leu Val Pro Thr Glu Ile Ala Leu Ala Gln His Arg
        415                    420                    425

gcc aat gcc aag agt gcc aag acc tac gcc tac ctg ttt tcc cat ccc        1348
Ala Asn Ala Lys Ser Ala Lys Thr Tyr Ala Tyr Leu Phe Ser His Pro
        430                    435                    440

tct cgg atg ccc gtc tac ccc aaa tgg gtg ggg gcc gac cat gca gat        1396
Ser Arg Met Pro Val Tyr Pro Lys Trp Val Gly Ala Asp His Ala Asp
445                    450                    455                    460

gac att cag tac gtt ttc ggg aag ccc ttc gcc acc ccc acg ggc tac        1444
Asp Ile Gln Tyr Val Phe Gly Lys Pro Phe Ala Thr Pro Thr Gly Tyr
                465                    470                    475

cgg ccc caa gac agg aca gtc tct aag gcc atg atc gcc tac tgg acc        1492
Arg Pro Gln Asp Arg Thr Val Ser Lys Ala Met Ile Ala Tyr Trp Thr
                480                    485                    490

aac ttt gcc aaa aca ggg gac ccc aac atg ggc gac tcg gct gtg ccc        1540
Asn Phe Ala Lys Thr Gly Asp Pro Asn Met Gly Asp Ser Ala Val Pro
        495                    500                    505

aca cac tgg gaa ccc tac act acg gaa aac agc ggc tac ctg gag atc        1588
Thr His Trp Glu Pro Tyr Thr Thr Glu Asn Ser Gly Tyr Leu Glu Ile
    510                    515                    520

acc aag aag atg ggc agc agc tcc atg aag cgg agc ctg aga acc aac        1636
Thr Lys Lys Met Gly Ser Ser Ser Met Lys Arg Ser Leu Arg Thr Asn
525                    530                    535                    540

ttc ctg cgc tac tgg acc ctc acc tat ctg gcg ctg ccc aca gtg acc        1684
Phe Leu Arg Tyr Trp Thr Leu Thr Tyr Leu Ala Leu Pro Thr Val Thr
                545                    550                    555

gac cag gag gcc acc cct gtg ccc ccc aca ggg gac tcc gag gcc act        1732
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Asp Gln Glu Ala Thr Pro Val Pro Pro Thr Gly Asp Ser Glu Ala Thr
        560             565             570

ccc gtg ccc ccc acg ggt gac tcc gag acc gcc ccc gtg ccg ccc acg    1780
Pro Val Pro Pro Thr Gly Asp Ser Glu Thr Ala Pro Val Pro Pro Thr
        575             580             585

ggt gac tcc ggg gcc ccc ccc gtg ccg ccc acg ggt gac tcc ggg gcc    1828
Gly Asp Ser Gly Ala Pro Pro Val Pro Pro Thr Gly Asp Ser Gly Ala
        590             595             600

ccc ccc gtg ccg ccc acg ggt gac tcc ggg gcc ccc ccc gtg ccg ccc    1876
Pro Pro Val Pro Pro Thr Gly Asp Ser Gly Ala Pro Pro Val Pro Pro
605             610             615             620

acg ggt gac tcc ggg gcc ccc ccc gtg ccg ccc acg ggt gac tcc ggg    1924
Thr Gly Asp Ser Gly Ala Pro Pro Val Pro Pro Thr Gly Asp Ser Gly
        625             630             635

gcc ccc ccc gtg ccg ccc acg ggt gac tcc ggg gcc ccc ccc gtg ccg    1972
Ala Pro Pro Val Pro Pro Thr Gly Asp Ser Gly Ala Pro Pro Val Pro
        640             645             650

ccc acg ggt gac tcc ggc gcc ccc ccc gtg ccg ccc acg ggt gac gcc    2020
Pro Thr Gly Asp Ser Gly Ala Pro Pro Val Pro Pro Thr Gly Asp Ala
        655             660             665

ggg ccc ccc ccc gtg ccg ccc acg ggt gac tcc ggc gcc ccc ccc gtg    2068
Gly Pro Pro Pro Val Pro Pro Thr Gly Asp Ser Gly Ala Pro Pro Val
670             675             680

ccg ccc acg ggt gac tcc ggg gcc ccc ccc gtg acc ccc acg ggt gac    2116
Pro Pro Thr Gly Asp Ser Gly Ala Pro Pro Val Thr Pro Thr Gly Asp
685             690             695             700

tcc gag acc gcc ccc gtg ccg ccc acg ggt gac tcc ggg gcc ccc cct    2164
Ser Glu Thr Ala Pro Val Pro Pro Thr Gly Asp Ser Gly Ala Pro Pro
            705             710             715

gtg ccc ccc acg ggt gac tct gag gct gcc cct gtg ccc ccc aca gat    2212
Val Pro Pro Thr Gly Asp Ser Glu Ala Ala Pro Val Pro Pro Thr Asp
            720             725             730

gac tcc aag gaa gct cag atg cct gca gtc att agg ttt tagcgtccca     2261
Asp Ser Lys Glu Ala Gln Met Pro Ala Val Ile Arg Phe
        735             740             745

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<213>   Homo sapiens

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Gly Gly Phe Val Glu Gly Val Asn Lys Lys Leu Gly Leu Leu Gly Asp
            35                  40                  45

Ser Val Asp Ile Phe Lys Gly Ile Pro Phe Ala Ala Pro Thr Lys Ala
        50                  55                  60

Leu Glu Asn Pro Gln Pro His Pro Gly Trp Gln Gly Thr Leu Lys Ala
65                  70                  75                  80

Lys Asn Phe Lys Lys Arg Cys Leu Gln Ala Thr Ile Thr Gln Asp Ser
                85                  90                  95

Thr Tyr Gly Asp Glu Asp Cys Leu Tyr Leu Asn Ile Trp Val Pro Gln
            100                 105                 110

Gly Arg Lys Gln Val Ser Arg Asp Leu Pro Val Met Ile Trp Ile Tyr
            115                 120                 125

Gly Gly Ala Phe Leu Met Gly Ser Gly His Gly Ala Asn Phe Leu Asn
    130                 135                 140

Asn Tyr Leu Tyr Asp Gly Glu Glu Ile Ala Thr Arg Gly Asn Val Ile
145                 150                 155                 160

Val Val Thr Phe Asn Tyr Arg Val Gly Pro Leu Gly Phe Leu Ser Thr
            165                 170                 175

Gly Asp Ala Asn Leu Pro Gly Asn Tyr Gly Leu Arg Asp Gln His Met
            180                 185                 190

Ala Ile Ala Trp Val Lys Arg Asn Ile Ala Ala Phe Gly Gly Asp Pro
        195                 200                 205

Asn Asn Ile Thr Leu Phe Gly Glu Ser Ala Gly Gly Ala Ser Val Ser
    210                 215                 220

Leu Gln Thr Leu Ser Pro Tyr Asn Lys Gly Leu Ile Arg Arg Ala Ile
225                 230                 235                 240

Ser Gln Ser Gly Val Ala Leu Ser Pro Trp Val Ile Gln Lys Asn Pro
            245                 250                 255

Leu Phe Trp Ala Lys Lys Val Ala Glu Lys Val Gly Cys Pro Val Gly
            260                 265                 270
```

Asp Ala Ala Arg Met Ala Gln Cys Leu Lys Val Thr Asp Pro Arg Ala
        275               280               285

Leu Thr Leu Ala Tyr Lys Val Pro Leu Ala Gly Leu Glu Tyr Pro Met
        290               295               300

Leu His Tyr Val Gly Phe Val Pro Val Ile Asp Gly Asp Phe Ile Pro
305               310               315               320

Ala Asp Pro Ile Asn Leu Tyr Ala Asn Ala Ala Asp Ile Asp Tyr Ile
                325               330               335

Ala Gly Thr Asn Asn Met Asp Gly His Ile Phe Ala Ser Ile Asp Met
        340               345               350

Pro Ala Ile Asn Lys Gly Asn Lys Lys Val Thr Glu Glu Asp Phe Tyr
        355               360               365

Lys Leu Val Ser Glu Phe Thr Ile Thr Lys Gly Leu Arg Gly Ala Lys
        370               375               380

Thr Thr Phe Asp Val Tyr Thr Glu Ser Trp Ala Gln Asp Pro Ser Gln
385               390               395               400

Glu Asn Lys Lys Lys Thr Val Val Asp Phe Glu Thr Asp Val Leu Phe
                405               410               415

Leu Val Pro Thr Glu Ile Ala Leu Ala Gln His Arg Ala Asn Ala Lys
        420               425               430

Ser Ala Lys Thr Tyr Ala Tyr Leu Phe Ser His Pro Ser Arg Met Pro
        435               440               445

Val Tyr Pro Lys Trp Val Gly Ala Asp His Ala Asp Asp Ile Gln Tyr
        450               455               460

Val Phe Gly Lys Pro Phe Ala Thr Pro Thr Gly Tyr Arg Pro Gln Asp
465               470               475               480

Arg Thr Val Ser Lys Ala Met Ile Ala Tyr Trp Thr Asn Phe Ala Lys
                485               490               495

Thr Gly Asp Pro Asn Met Gly Asp Ser Ala Val Pro Thr His Trp Glu
                500               505               510

Pro Tyr Thr Thr Glu Asn Ser Gly Tyr Leu Glu Ile Thr Lys Lys Met
        515               520               525

Gly Ser Ser Ser Met Lys Arg Ser Leu Arg Thr Asn Phe Leu Arg Tyr
        530               535               540

Trp Thr Leu Thr Tyr Leu Ala Leu Pro Thr Val Thr Asp Gln Glu Ala
545               550               555               560

Thr Pro Val Pro Pro Thr Gly Asp Ser Glu Ala Thr Pro Val Pro Pro

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Thr Gly Asp Ser Glu Thr Ala Pro Val Pro Pro Thr Gly Asp Ser Gly
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Ala Pro Pro Val Pro Pro Thr Gly Asp Ser Gly Ala Pro Pro Val Pro
        595                      600                      605

Pro Thr Gly Asp Ser Gly Ala Pro Pro Val Pro Pro Thr Gly Asp Ser
        610                      615                      620

Gly Ala Pro Pro Val Pro Pro Thr Gly Asp Ser Gly Ala Pro Pro Val
625                      630                      635                      640


Pro Pro Thr Gly Asp Ser Gly Ala Pro Pro Val Pro Pro Thr Gly Asp
                645                      650                      655

Ser Gly Ala Pro Pro Val Pro Pro Thr Gly Asp Ala Gly Pro Pro Pro
                660                      665                      670

Val Pro Pro Thr Gly Asp Ser Gly Ala Pro Pro Val Pro Pro Thr Gly
        675                      680                      685

Asp Ser Gly Ala Pro Pro Val Thr Pro Thr Gly Asp Ser Glu Thr Ala
        690                      695                      700

Pro Val Pro Pro Thr Gly Asp Ser Gly Ala Pro Pro Val Pro Pro Thr
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Ala Gln Met Pro Ala Val Ile Arg Phe
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<213>  Homo sapiens

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aag aag aag act gtg gtg gac ttt gag acc gat gtc ctc ttc ctg gtg        96
Lys Lys Lys Thr Val Val Asp Phe Glu Thr Asp Val Leu Phe Leu Val
            20                  25                  30
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ccc acc gag att gcc cta gcc cag cac aga gcc aat gcc aag agt gcc    144
Pro Thr Glu Ile Ala Leu Ala Gln His Arg Ala Asn Ala Lys Ser Ala
        35                  40                  45

aag acc tac gcc tac ctg ttt tcc cat ccc tct cgg atg ccc gtc tac    192
Lys Thr Tyr Ala Tyr Leu Phe Ser His Pro Ser Arg Met Pro Val Tyr
        50                  55                  60

ccc aaa tgg gtg ggg gcc gac cat gca gat gac att cag tac gtt ttc    240
Pro Lys Trp Val Gly Ala Asp His Ala Asp Asp Ile Gln Tyr Val Phe
65                  70                  75                  80

ggg aag ccc ttc gcc acc ccc acg ggc tac cgg ccc caa gac agg aca    288
Gly Lys Pro Phe Ala Thr Pro Thr Gly Tyr Arg Pro Gln Asp Arg Thr
                85                  90                  95

gtc tct aag gcc atg atc gcc tac tgg acc aac ttt gcc aaa aca ggg    336
Val Ser Lys Ala Met Ile Ala Tyr Trp Thr Asn Phe Ala Lys Thr Gly
               100                 105                 110

gac ccc aac atg ggc gac tcg gct gtg ccc aca cac tgg gaa ccc tac    384
Asp Pro Asn Met Gly Asp Ser Ala Val Pro Thr His Trp Glu Pro Tyr
               115                 120                 125

act acg gaa aac agc ggc tac ctg gag atc acc aag aag atg ggc agc    432
Thr Thr Glu Asn Ser Gly Tyr Leu Glu Ile Thr Lys Lys Met Gly Ser
        130                 135                 140

agc tcc atg aag cgg agc ctg aga acc aac ttc ctg cgc tac tgg acc    480
Ser Ser Met Lys Arg Ser Leu Arg Thr Asn Phe Leu Arg Tyr Trp Thr
145                 150                 155                 160

ctc acc tat ctg gcg ctg ccc aca gtg acc gac cag gag gcc acc cct    528
Leu Thr Tyr Leu Ala Leu Pro Thr Val Thr Asp Gln Glu Ala Thr Pro
               165                 170                 175

gtg ccc ccc aca ggg gac tcc gag gcc act ccc gtg ccc ccc acg ggt    576
Val Pro Pro Thr Gly Asp Ser Glu Ala Thr Pro Val Pro Pro Thr Gly
               180                 185                 190

gac tcc gag acc gcc ccc gtg ccg ccc acg ggt gac tcc ggg gcc ccc    624
Asp Ser Glu Thr Ala Pro Val Pro Pro Thr Gly Asp Ser Gly Ala Pro
        195                 200                 205

ccc gtg ccg ccc acg ggt gac tcc ggg gcc ccc ccc gtg ccg ccc acg    672
Pro Val Pro Pro Thr Gly Asp Ser Gly Ala Pro Pro Val Pro Pro Thr
        210                 215                 220

ggt gac tcc ggg gcc ccc ccc gtg ccg ccc acg ggt gac tcc ggg gcc    720
Gly Asp Ser Gly Ala Pro Pro Val Pro Pro Thr Gly Asp Ser Gly Ala
225                 230                 235                 240

ccc ccc gtg ccg ccc acg ggt gac tcc ggg gcc ccc ccc gtg ccg ccc    768
Pro Pro Val Pro Pro Thr Gly Asp Ser Gly Ala Pro Pro Val Pro Pro
               245                 250                 255
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acg ggt gac tcc ggg gcc ccc ccc gtg ccg ccc acg ggt gac tcc ggc        816
Thr Gly Asp Ser Gly Ala Pro Pro Val Pro Pro Thr Gly Asp Ser Gly
        260             265             270

gcc ccc ccc gtg ccg ccc acg ggt gac gcc ggg ccc ccc ccc gtg ccg        864
Ala Pro Pro Val Pro Pro Thr Gly Asp Ala Gly Pro Pro Pro Val Pro
        275             280             285

ccc acg ggt gac tcc ggc gcc ccc ccc gtg ccg ccc acg ggt gac tcc        912
Pro Thr Gly Asp Ser Gly Ala Pro Pro Val Pro Pro Thr Gly Asp Ser
        290             295             300

ggg gcc ccc ccc gtg acc ccc acg ggt gac tcc gag acc gcc ccc gtg        960
Gly Ala Pro Pro Val Thr Pro Thr Gly Asp Ser Glu Thr Ala Pro Val
305             310             315             320

ccg ccc acg ggt gac tcc ggg gcc ccc cct gtg ccc ccc acg ggt gac       1008
Pro Pro Thr Gly Asp Ser Gly Ala Pro Pro Val Pro Pro Thr Gly Asp
            325             330             335

tct gag gct gcc cct gtg ccc ccc aca gat gac tcc aag gaa gct cag       1056
Ser Glu Ala Ala Pro Val Pro Pro Thr Asp Asp Ser Lys Glu Ala Gln
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Met Pro Ala Val Ile Arg Phe
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<213> Homo sapiens

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Pro Thr Glu Ile Ala Leu Ala Gln His Arg Ala Asn Ala Lys Ser Ala
        35              40              45

Lys Thr Tyr Ala Tyr Leu Phe Ser His Pro Ser Arg Met Pro Val Tyr
    50              55              60

Pro Lys Trp Val Gly Ala Asp His Ala Asp Asp Ile Gln Tyr Val Phe
65              70              75              80

Gly Lys Pro Phe Ala Thr Pro Thr Gly Tyr Arg Pro Gln Asp Arg Thr
            85              90              95
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Val Ser Lys Ala Met Ile Ala Tyr Trp Thr Asn Phe Ala Lys Thr Gly
            100             105             110

Asp Pro Asn Met Gly Asp Ser Ala Val Pro Thr His Trp Glu Pro Tyr
            115             120             125

Thr Thr Glu Asn Ser Gly Tyr Leu Glu Ile Thr Lys Lys Met Gly Ser
            130             135             140

Ser Ser Met Lys Arg Ser Leu Arg Thr Asn Phe Leu Arg Tyr Trp Thr
145             150             155             160

Leu Thr Tyr Leu Ala Leu Pro Thr Val Thr Asp Gln Glu Ala Thr Pro
            165             170             175

Val Pro Pro Thr Gly Asp Ser Glu Ala Thr Pro Val Pro Pro Thr Gly
            180             185             190

Asp Ser Glu Thr Ala Pro Val Pro Pro Thr Gly Asp Ser Gly Ala Pro
            195             200             205

Pro Val Pro Pro Thr Gly Asp Ser Gly Ala Pro Pro Val Pro Pro Thr
            210             215             220

Gly Asp Ser Gly Ala Pro Pro Val Pro Pro Thr Gly Asp Ser Gly Ala
225             230             235             240

Pro Pro Val Pro Pro Thr Gly Asp Ser Gly Ala Pro Pro Val Pro Pro
            245             250             255

Thr Gly Asp Ser Gly Ala Pro Pro Val Pro Pro Thr Gly Asp Ser Gly
            260             265             270

Ala Pro Pro Val Pro Pro Thr Gly Asp Ala Gly Pro Pro Pro Val Pro
            275             280             285

Pro Thr Gly Asp Ser Gly Ala Pro Pro Val Pro Pro Thr Gly Asp Ser
            290             295             300

Gly Ala Pro Pro Val Thr Pro Thr Gly Asp Ser Glu Thr Ala Pro Val
305             310             315             320

Pro Pro Thr Gly Asp Ser Gly Ala Pro Pro Val Pro Pro Thr Gly Asp
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Met Pro Ala Val Ile Arg Phe
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| Ala | Lys | Leu | Gly | Ala | Val | Tyr | Thr | Glu | Gly | Gly | Phe | Val | Glu | Gly | Val | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | | |

| aat | aag | aag | ctc | ggc | ctc | ctg | ggt | gac | tct | gtg | gac | atc | ttc | aag | ggc | 96 |
| Asn | Lys | Lys | Leu | Gly | Leu | Leu | Gly | Asp | Ser | Val | Asp | Ile | Phe | Lys | Gly | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |

| atc | ccc | ttc | gca | gct | ccc | acc | aag | gcc | ctg | gaa | aat | cct | cag | cca | cat | 144 |
| Ile | Pro | Phe | Ala | Ala | Pro | Thr | Lys | Ala | Leu | Glu | Asn | Pro | Gln | Pro | His | |
| | | 35 | | | | | 40 | | | | | 45 | | | | |

| cct | ggc | tgg | caa | ggg | acc | ctg | aag | gcc | aag | aac | ttc | aag | aag | aga | tgc | 192 |
| Pro | Gly | Trp | Gln | Gly | Thr | Leu | Lys | Ala | Lys | Asn | Phe | Lys | Lys | Arg | Cys | |
| | 50 | | | | | 55 | | | | | 60 | | | | | |

| ctg | cag | gcc | acc | atc | acc | cag | gac | agc | acc | tac | ggg | gat | gaa | gac | tgc | 240 |
| Leu | Gln | Ala | Thr | Ile | Thr | Gln | Asp | Ser | Thr | Tyr | Gly | Asp | Glu | Asp | Cys | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | |

| ctg | tac | ctc | aac | att | tgg | gtg | ccc | cag | ggc | agg | aag | caa | gtc | tcc | cgg | 288 |
| Leu | Tyr | Leu | Asn | Ile | Trp | Val | Pro | Gln | Gly | Arg | Lys | Gln | Val | Ser | Arg | |
| | | | | 85 | | | | | 90 | | | | | 95 | | |

| gac | ctg | ccc | gtt | atg | atc | tgg | atc | tat | gga | ggc | gcc | ttc | ctc | atg | ggg | 336 |
| Asp | Leu | Pro | Val | Met | Ile | Trp | Ile | Tyr | Gly | Gly | Ala | Phe | Leu | Met | Gly | |
| | | | 100 | | | | | 105 | | | | | 110 | | | |

| tcc | ggc | cat | ggg | gcc | aac | ttc | ctc | aac | aac | tac | ctg | tat | gac | ggc | gag | 384 |
| Ser | Gly | His | Gly | Ala | Asn | Phe | Leu | Asn | Asn | Tyr | Leu | Tyr | Asp | Gly | Glu | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |

| gag | atc | gcc | aca | cgc | gga | aac | gtc | atc | gtg | gtc | acc | ttc | aac | tac | cgt | 432 |
| Glu | Ile | Ala | Thr | Arg | Gly | Asn | Val | Ile | Val | Val | Thr | Phe | Asn | Tyr | Arg | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |

| gtc | ggc | ccc | ctt | ggg | ttc | ctc | agc | act | ggg | gac | gcc | aat | ctg | cca | ggt | 480 |
| Val | Gly | Pro | Leu | Gly | Phe | Leu | Ser | Thr | Gly | Asp | Ala | Asn | Leu | Pro | Gly | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |

| aac | tat | ggc | ctt | cgg | gat | cag | cac | atg | gcc | att | gct | tgg | gtg | aag | agg | 528 |
| Asn | Tyr | Gly | Leu | Arg | Asp | Gln | His | Met | Ala | Ile | Ala | Trp | Val | Lys | Arg | |
| | | | 165 | | | | | 170 | | | | | 175 | | | |

| aat | atc | gcg | gcc | ttc | ggg | ggg | gac | ccc | aac | aac | atc | acg | ctc | ttc | ggg | 576 |
| Asn | Ile | Ala | Ala | Phe | Gly | Gly | Asp | Pro | Asn | Asn | Ile | Thr | Leu | Phe | Gly | |
| | | | 180 | | | | | 185 | | | | | 190 | | | |

```
gag tct gct gga ggt gcc agc gtc tct ctg cag act ctc tcc ccc tac      624
Glu Ser Ala Gly Gly Ala Ser Val Ser Leu Gln Thr Leu Ser Pro Tyr
        195                 200                 205

aac aag ggc ctc atc cgg cga gcc atc agc cag agc ggc gtg gcc ctg      672
Asn Lys Gly Leu Ile Arg Arg Ala Ile Ser Gln Ser Gly Val Ala Leu
        210                 215                 220

agt ccc tgg gtc atc cag aaa aac cca ctc ttc tgg gcc aaa aag gtg      720
Ser Pro Trp Val Ile Gln Lys Asn Pro Leu Phe Trp Ala Lys Lys Val
225                 230                 235                 240

gct gag aag gtg ggt tgc cct gtg ggt gat gcc gcc agg atg gcc cag      768
Ala Glu Lys Val Gly Cys Pro Val Gly Asp Ala Ala Arg Met Ala Gln
                245                 250                 255

tgt ctg aag gtt act gat ccc cga gcc ctg acg ctg gcc tat aag gtg      816
Cys Leu Lys Val Thr Asp Pro Arg Ala Leu Thr Leu Ala Tyr Lys Val
                260                 265                 270

ccg ctg gca ggc ctg gag tac ccc atg ctg cac tat gtg ggc ttc gtc      864
Pro Leu Ala Gly Leu Glu Tyr Pro Met Leu His Tyr Val Gly Phe Val
                275                 280                 285

cct gtc att gat gga gac ttc atc ccc gct gac ccg atc aac ctg tac      912
Pro Val Ile Asp Gly Asp Phe Ile Pro Ala Asp Pro Ile Asn Leu Tyr
        290                 295                 300

gcc aac gcc gcc gac atc gac tat ata gca ggc acc aac aac atg gac      960
Ala Asn Ala Ala Asp Ile Asp Tyr Ile Ala Gly Thr Asn Asn Met Asp
305                 310                 315                 320

ggc cac atc ttc gcc agc atc gac atg cct gcc atc aac aag ggc aac     1008
Gly His Ile Phe Ala Ser Ile Asp Met Pro Ala Ile Asn Lys Gly Asn
                325                 330                 335

aag aaa gtc acg gag gag gac ttc tac aag ctg gtc agt gag ttc aca     1056
Lys Lys Val Thr Glu Glu Asp Phe Tyr Lys Leu Val Ser Glu Phe Thr
                340                 345                 350

atc acc aag ggg ctc aga ggc gcc aag acg acc ttt gat gtc tac acc     1104
Ile Thr Lys Gly Leu Arg Gly Ala Lys Thr Thr Phe Asp Val Tyr Thr
                355                 360                 365

gag tcc tgg gcc cag gac cca tcc cag gag aat aag aag aag act gtg     1152
Glu Ser Trp Ala Gln Asp Pro Ser Gln Glu Asn Lys Lys Lys Thr Val
        370                 375                 380

gtg gac ttt gag acc gat gtc ctc ttc ctg gtg ccc acc gag att gcc     1200
Val Asp Phe Glu Thr Asp Val Leu Phe Leu Val Pro Thr Glu Ile Ala
385                 390                 395                 400

cta gcc cag cac aga gcc aat gcc aag agt gcc aag acc tac gcc tac     1248
Leu Ala Gln His Arg Ala Asn Ala Lys Ser Ala Lys Thr Tyr Ala Tyr
                405                 410                 415
```

```
ctg ttt tcc cat ccc tct cgg atg ccc gtc tac ccc aaa tgg gtg ggg        1296
Leu Phe Ser His Pro Ser Arg Met Pro Val Tyr Pro Lys Trp Val Gly
            420             425             430

gcc gac cat gca gat gac att cag tac gtt ttc ggg aag ccc ttc gcc        1344
Ala Asp His Ala Asp Asp Ile Gln Tyr Val Phe Gly Lys Pro Phe Ala
            435             440             445

acc ccc acg ggc tac cgg ccc caa gac agg aca gtc tct aag gcc atg        1392
Thr Pro Thr Gly Tyr Arg Pro Gln Asp Arg Thr Val Ser Lys Ala Met
            450             455             460

atc gcc tac tgg acc aac ttt gcc aaa aca ggg gac ccc aac atg ggc        1440
Ile Ala Tyr Trp Thr Asn Phe Ala Lys Thr Gly Asp Pro Asn Met Gly
465             470             475             480

gac tcg gct gtg ccc aca cac tgg gaa ccc tac act acg gaa aac agc        1488
Asp Ser Ala Val Pro Thr His Trp Glu Pro Tyr Thr Thr Glu Asn Ser
            485             490             495

ggc tac ctg gag atc acc aag aag atg ggc agc agc tcc atg aag cgg        1536
Gly Tyr Leu Glu Ile Thr Lys Lys Met Gly Ser Ser Ser Met Lys Arg
            500             505             510

agc ctg aga acc aac ttc ctg cgc tac tgg acc ctc acc tat ctg gcg        1584
Ser Leu Arg Thr Asn Phe Leu Arg Tyr Trp Thr Leu Thr Tyr Leu Ala
            515             520             525

ctg ccc aca gtg acc gac cag gag gcc acc cct gtg ccc ccc aca ggg        1632
Leu Pro Thr Val Thr Asp Gln Glu Ala Thr Pro Val Pro Pro Thr Gly
            530             535             540

gac tcc gag gcc act ccc gtg ccc ccc acg ggt gac tcc gag acc gcc        1680
Asp Ser Glu Ala Thr Pro Val Pro Pro Thr Gly Asp Ser Glu Thr Ala
545             550             555             560

ccc gtg ccg ccc acg ggc gac tcc ggg gcc ccc ccc gtg ccg ccc acg        1728
Pro Val Pro Pro Thr Gly Asp Ser Gly Ala Pro Pro Val Pro Pro Thr
            565             570             575

ggt gac tcc ggg gcc ccc cct gtg ccc ccc acg ggt gac tct gag gct        1776
Gly Asp Ser Gly Ala Pro Pro Val Pro Pro Thr Gly Asp Ser Glu Ala
            580             585             590

gcc cct gtg ccc ccc aca ggt gac tcc aag gaa gct cag atg cct gca        1824
Ala Pro Val Pro Pro Thr Gly Asp Ser Lys Glu Ala Gln Met Pro Ala
            595             600             605

gtc att agg ttt tag                                                     1839
Val Ile Arg Phe
            610
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<210> 11

<211> 612
<212> PRT
<213> Homo sapiens

<400> 11

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Ala Lys Leu Gly Ala Val Tyr Thr Glu Gly Gly Phe Val Glu Gly Val
1               5                   10                  15

Asn Lys Lys Leu Gly Leu Leu Gly Asp Ser Val Asp Ile Phe Lys Gly
            20                  25                  30

Ile Pro Phe Ala Ala Pro Thr Lys Ala Leu Glu Asn Pro Gln Pro His
        35                  40                  45

Pro Gly Trp Gln Gly Thr Leu Lys Ala Lys Asn Phe Lys Lys Arg Cys
    50                  55                  60

Leu Gln Ala Thr Ile Thr Gln Asp Ser Thr Tyr Gly Asp Glu Asp Cys
65                  70                  75                  80

Leu Tyr Leu Asn Ile Trp Val Pro Gln Gly Arg Lys Gln Val Ser Arg
                85                  90                  95

Asp Leu Pro Val Met Ile Trp Ile Tyr Gly Gly Ala Phe Leu Met Gly
            100                 105                 110

Ser Gly His Gly Ala Asn Phe Leu Asn Asn Tyr Leu Tyr Asp Gly Glu
        115                 120                 125

Glu Ile Ala Thr Arg Gly Asn Val Ile Val Val Thr Phe Asn Tyr Arg
    130                 135                 140

Val Gly Pro Leu Gly Phe Leu Ser Thr Gly Asp Ala Asn Leu Pro Gly
145                 150                 155                 160

Asn Tyr Gly Leu Arg Asp Gln His Met Ala Ile Ala Trp Val Lys Arg
                165                 170                 175

Asn Ile Ala Ala Phe Gly Gly Asp Pro Asn Asn Ile Thr Leu Phe Gly
        180                 185                 190

Glu Ser Ala Gly Gly Ala Ser Val Ser Leu Gln Thr Leu Ser Pro Tyr
        195                 200                 205

Asn Lys Gly Leu Ile Arg Arg Ala Ile Ser Gln Ser Gly Val Ala Leu
    210                 215                 220

Ser Pro Trp Val Ile Gln Lys Asn Pro Leu Phe Trp Ala Lys Lys Val
225                 230                 235                 240

Ala Glu Lys Val Gly Cys Pro Val Gly Asp Ala Ala Arg Met Ala Gln
            245                 250                 255

Cys Leu Lys Val Thr Asp Pro Arg Ala Leu Thr Leu Ala Tyr Lys Val
```

```
        260                      265                      270

Pro Leu Ala Gly Leu Glu Tyr Pro Met Leu His Tyr Val Gly Phe Val
        275                 280                 285

Pro Val Ile Asp Gly Asp Phe Ile Pro Ala Asp Pro Ile Asn Leu Tyr
        290             295                 300

Ala Asn Ala Ala Asp Ile Asp Tyr Ile Ala Gly Thr Asn Asn Met Asp
305             310                 315                     320

Gly His Ile Phe Ala Ser Ile Asp Met Pro Ala Ile Asn Lys Gly Asn
                325                 330                 335

Lys Lys Val Thr Glu Glu Asp Phe Tyr Lys Leu Val Ser Glu Phe Thr
                340                 345                 350

Ile Thr Lys Gly Leu Arg Gly Ala Lys Thr Thr Phe Asp Val Tyr Thr
            355                 360                 365

Glu Ser Trp Ala Gln Asp Pro Ser Gln Glu Asn Lys Lys Lys Thr Val
        370                 375                 380

Val Asp Phe Glu Thr Asp Val Leu Phe Leu Val Pro Thr Glu Ile Ala
385             390                 395                     400

Leu Ala Gln His Arg Ala Asn Ala Lys Ser Ala Lys Thr Tyr Ala Tyr
                405                 410                 415

Leu Phe Ser His Pro Ser Arg Met Pro Val Tyr Pro Lys Trp Val Gly
                420                 425                 430

Ala Asp His Ala Asp Asp Ile Gln Tyr Val Phe Gly Lys Pro Phe Ala
            435                 440                 445

Thr Pro Thr Gly Tyr Arg Pro Gln Asp Arg Thr Val Ser Lys Ala Met
    450                 455                 460

Ile Ala Tyr Trp Thr Asn Phe Ala Lys Thr Gly Asp Pro Asn Met Gly
465                 470                 475                     480

Asp Ser Ala Val Pro Thr His Trp Glu Pro Tyr Thr Thr Glu Asn Ser
                485                 490                 495

Gly Tyr Leu Glu Ile Thr Lys Lys Met Gly Ser Ser Ser Met Lys Arg
            500                 505                 510

Ser Leu Arg Thr Asn Phe Leu Arg Tyr Trp Thr Leu Thr Tyr Leu Ala
            515                 520                 525

Leu Pro Thr Val Thr Asp Gln Glu Ala Thr Pro Val Pro Pro Thr Gly
    530                 535                 540

Asp Ser Glu Ala Thr Pro Val Pro Pro Thr Gly Asp Ser Glu Thr Ala
545                 550                 555                     560
```

```
Pro Val Pro Pro Thr Gly Asp Ser Gly Ala Pro Pro Val Pro Pro Thr
            565                 570                 575

Gly Asp Ser Gly Ala Pro Pro Val Pro Pro Thr Gly Asp Ser Glu Ala
            580                 585                 590

Ala Pro Val Pro Pro Thr Gly Asp Ser Lys Glu Ala Gln Met Pro Ala
            595                 600                 605

Val Ile Arg Phe
            610


<210>  12
<211>  750
<212>  DNA
<213>  Homo sapiens

<220>
<221>  CDS
<222>  (1)..(747)

<400>  12
ttt gat gtc tac acc gag tcc tgg gcc cag gac cca tcc cag gag aat        48
Phe Asp Val Tyr Thr Glu Ser Trp Ala Gln Asp Pro Ser Gln Glu Asn
1               5                   10                  15

aag aag aag act gtg gtg gac ttt gag acc gat gtc ctc ttc ctg gtg        96
Lys Lys Lys Thr Val Val Asp Phe Glu Thr Asp Val Leu Phe Leu Val
            20                  25                  30

ccc acc gag att gcc cta gcc cag cac aga gcc aat gcc aag agt gcc       144
Pro Thr Glu Ile Ala Leu Ala Gln His Arg Ala Asn Ala Lys Ser Ala
            35                  40                  45

aag acc tac gcc tac ctg ttt tcc cat ccc tct cgg atg ccc gtc tac       192
Lys Thr Tyr Ala Tyr Leu Phe Ser His Pro Ser Arg Met Pro Val Tyr
        50                  55                  60

ccc aaa tgg gtg ggg gcc gac cat gca gat gac att cag tac gtt ttc       240
Pro Lys Trp Val Gly Ala Asp His Ala Asp Asp Ile Gln Tyr Val Phe
65                  70                  75                  80

ggg aag ccc ttc gcc acc ccc acg ggc tac cgg ccc caa gac agg aca       288
Gly Lys Pro Phe Ala Thr Pro Thr Gly Tyr Arg Pro Gln Asp Arg Thr
                85                  90                  95

gtc tct aag gcc atg atc gcc tac tgg acc aac ttt gcc aaa aca ggg       336
Val Ser Lys Ala Met Ile Ala Tyr Trp Thr Asn Phe Ala Lys Thr Gly
                100                 105                 110

gac ccc aac atg ggc gac tcg gct gtg ccc aca cac tgg gaa ccc tac       384
Asp Pro Asn Met Gly Asp Ser Ala Val Pro Thr His Trp Glu Pro Tyr
            115                 120                 125
```

```
act acg gaa aac agc ggc tac ctg gag atc acc aag aag atg ggc agc        432
Thr Thr Glu Asn Ser Gly Tyr Leu Glu Ile Thr Lys Lys Met Gly Ser
    130                 135                 140

agc tcc atg aag cgg agc ctg aga acc aac ttc ctg cgc tac tgg acc        480
Ser Ser Met Lys Arg Ser Leu Arg Thr Asn Phe Leu Arg Tyr Trp Thr
145                 150                 155                 160

ctc acc tat ctg gcg ctg ccc aca gtg acc gac cag gag gcc acc cct        528
Leu Thr Tyr Leu Ala Leu Pro Thr Val Thr Asp Gln Glu Ala Thr Pro
                165                 170                 175

gtg ccc ccc aca ggg gac tcc gag gcc act ccc gtg ccc ccc acg ggt        576
Val Pro Pro Thr Gly Asp Ser Glu Ala Thr Pro Val Pro Pro Thr Gly
                180                 185                 190

gac tcc gag acc gcc ccc gtg ccg ccc acg ggc gac tcc ggg gcc ccc        624
Asp Ser Glu Thr Ala Pro Val Pro Pro Thr Gly Asp Ser Gly Ala Pro
            195                 200                 205

ccc gtg ccg ccc acg ggt gac tcc ggg gcc ccc cct gtg ccc ccc acg        672
Pro Val Pro Pro Thr Gly Asp Ser Gly Ala Pro Pro Val Pro Pro Thr
        210                 215                 220

ggt gac tct gag gct gcc cct gtg ccc ccc aca ggt gac tcc aag gaa        720
Gly Asp Ser Glu Ala Ala Pro Val Pro Pro Thr Gly Asp Ser Lys Glu
225                 230                 235                 240

gct cag atg cct gca gtc att agg ttt tag                                750
Ala Gln Met Pro Ala Val Ile Arg Phe
                245
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<210>  13
<211>  249
<212>  PRT
<213>  Homo sapiens

<400>  13

Phe Asp Val Tyr Thr Glu Ser Trp Ala Gln Asp Pro Ser Gln Glu Asn
1               5                   10                  15

Lys Lys Lys Thr Val Val Asp Phe Glu Thr Asp Val Leu Phe Leu Val
                20                  25                  30

Pro Thr Glu Ile Ala Leu Ala Gln His Arg Ala Asn Ala Lys Ser Ala
            35                  40                  45

Lys Thr Tyr Ala Tyr Leu Phe Ser His Pro Ser Arg Met Pro Val Tyr
        50                  55                  60

Pro Lys Trp Val Gly Ala Asp His Ala Asp Asp Ile Gln Tyr Val Phe
65                  70                  75                  80
```

```
Gly Lys Pro Phe Ala Thr Pro Thr Gly Tyr Arg Pro Gln Asp Arg Thr
                85              90                  95

Val Ser Lys Ala Met Ile Ala Tyr Trp Thr Asn Phe Ala Lys Thr Gly
            100             105                 110

Asp Pro Asn Met Gly Asp Ser Ala Val Pro Thr His Trp Glu Pro Tyr
            115             120             125

Thr Thr Glu Asn Ser Gly Tyr Leu Glu Ile Thr Lys Lys Met Gly Ser
        130             135             140

Ser Ser Met Lys Arg Ser Leu Arg Thr Asn Phe Leu Arg Tyr Trp Thr
145             150             155                 160

Leu Thr Tyr Leu Ala Leu Pro Thr Val Thr Asp Gln Glu Ala Thr Pro
            165             170             175

Val Pro Pro Thr Gly Asp Ser Glu Ala Thr Pro Val Pro Pro Thr Gly
            180             185             190

Asp Ser Glu Thr Ala Pro Val Pro Pro Thr Gly Asp Ser Gly Ala Pro
        195             200             205

Pro Val Pro Pro Thr Gly Asp Ser Gly Ala Pro Pro Val Pro Pro Thr
    210             215             220

Gly Asp Ser Glu Ala Ala Pro Val Pro Pro Thr Gly Asp Ser Lys Glu
225             230             235             240

Ala Gln Met Pro Ala Val Ile Arg Phe
                245
```

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<210>  14
<211>  11
<212>  PRT
<213>  Homo sapiens

<220>
<221>  MISC_FEATURE
<222>  (3)..(3)
<223>  Xaa is Glu or Gly

<220>
<221>  MISC_FEATURE
<222>  (11)..(11)
<223>  Xaa is Glu or Gly

<400>  14

Asp Ser Xaa Ala Pro Pro Val Pro Pro Thr Xaa
1               5                   10
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